

## Rain Helps Nitrogen and Makes Grass Green

By: Ed Perry, Stanislaus County Farm Advisor

I came across the following interesting article entitled "Does Rain Green Up Grass?", in the Spring 1996 issue of a newsletter entitled *The Curious Gardener*. I thought you might enjoy reading about this source of "natural" lawn fertilizer.

Grass seems greener after a rain, but is it just the addition of water in the soil?

Actually, it is nitrogen that causes the grass to look greener. There is about 80 percent nitrogen as a gas in our atmosphere, but this is a form that plants cannot readily use. When it rains, oxides of nitrogen are dissolved in the rainwater, which then goes into the soil. Here the nitrogen is "fixed" or made into an ammonia or nitrate form usable by plants, usually by bacteria that live in the soil. Bacteria involved in this process are Azotobacter, Clostridium and Rhizobium, as well as blue-green algae.

The bacteria change the atmospheric nitrogen into nitrate, ammonia or ammonium.

The ammonia and ammonium are also converted to nitrate in the soil by still other bacteria, such as Nitrosomonas and Nitrobacter. Thus these complicated biological processes change atmospheric nitrogen into a form that plants can take up with the soil water and use in Chlorophyll production, which causes an increase in the green color that you see in the grass.

This natural process is simulated when you apply fertilizer to turf to make it greener. To make fertilizers, manufacturers take atmospheric gas and use industrial processes to make it into forms that are available to plants, such as urea or ammonium nitrate.

Some of these nitrogen forms are readily available for use by the plant, while others are converted into nitrate forms for plant use by soil bacteria.

## Research Update

By: Wayne Lindelof, CGCS

As reported in last month's "Thru The Green," an experimental green has been developed at Crystal Springs Golf Course, in cooperation with the USGA, GCSAA, NTEP and University of California Cooperative Extension. The site at Crystal Springs represents one of thirty across the USA. The USGA spec green was planted in mid-September with 18 bentgrass varieties.

Weather permitting, the practice green is scheduled to open for

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